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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,524

09/01/2006

Kei Tashiro

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EXAMINER

HEINCER, LIAM J

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,524	Applicant(s) TASHIRO ET AL.	
	Examiner Liam J. Heincer	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Considering Claim 1: Claim 1 has been amended to include the limitation "wherein the proteins are sufficiently denatured within 5 to 10 minutes". The term "sufficiently" is indefinite in the claim, as there is nothing in the claim or original specification to allow a person having ordinary skill in the art at the time of invention to determine that a rubber has been sufficiently denatured. As no express purpose for the rubber has been articulated, it is not clear what threshold would need to be passed for the rubber to be deemed sufficiently denatured for the desired use. For the purpose of further examination, the claim is being interpreted such that any denaturing would meet the claim.

Additionally, it is unclear whether the claimed time is required as limitation on a specific step, or whether the time is a property of the process. As the time has not been identified in the claim as being tied to a particular method step, or to the process as a whole, the language does not appear to limit the processing time. As such, the claim is being interpreted as not requiring any specific step, or the process as a whole, to be preformed in the claimed time range.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1796

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara et al. (JP 2004-099696) as evidenced by S. Kawahara et al. (Polym. Adv. Technol. 2004; 15: 181-184) Note: A machine translation is being used for JP 2004-099696 and all citations will be directed towards the machine translation.

Considering Claim 1: Kawahara et al. teaches a method for deproteinizing natural rubber latex (¶0001) comprising adding a urea denaturing agent (¶0008-09) and a surface active agent/surfactant (¶0015) to a natural rubber latex (¶0010); mixing and agitating the mixture (¶0028); and separating the denatured proteins from the rubber latex (¶0014).

Kawahara et al. does not teach the mixing as occurring during the transportation through a fluid channel. However, it is obvious to transform a known batch process into a continuous process. See MPEP § 2144.04 (V). Therefore it would have been obvious to a person having ordinary skill in the art at the time of invention to have made the process of Kawahara et al. continuous/mix the components in a transportation channel, and the motivation to do so would have been to make the process more efficient and cost effective.

S. Kawahara et al. teaches that urea in the presence of a surfactant (pg. 181) will reduce the nitrogen content of the rubber/sufficiently denature the proteins substantially within the first ten minutes of the incubation (pg. 182).

Art Unit: 1796

Considering Claim 2: Kawahara et al. teaches using the urea in an amount of 0.2 weight percent (Example 1).

Considering Claim 3: Kawahara et al. teaches using the surface active agent in an amount of 0.01 to 10 weight percent (¶0012).

Considering Claim 4: Kawahara et al. teaches the separation as being preformed through centrifugal separation treatment (¶0007).

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (Purification of Natural Rubber with Urea), presented in applicant's IDS (9/1/06), in view of Trautman (US Pat. 5,777,004) as evidenced by S. Kawahara et al. (Polym. Adv. Technol. 2004; 15: 181-184).

Considering Claims 1, 4, and 5: Saito et al. teaches a method of denaturing natural rubber latex (page 1) comprising comprising adding a urea denaturing agent and a surfactant to a natural rubber latex (page 1); and centrifuging the mixture at 10,000 G (page 1).

Saito et al. doesn't teach agitating the mixture. However, Trautman teaches agitating a mixture of a natural rubber latex and a denaturing agent (5:29-35). Saito et al. and Trautman are analogous art as they are concerned with the same field of endeavor, namely denaturing natural rubber latex proteins. It would have been obvious to a person having ordinary skill in the art at the time of invention to have agitated the mixture of Saito et al. as in Trautman and the motivation to do so would have been, as Trautman suggests, to ensure complete hydrolysis of the proteins (5:29-35).

Saito et al. does not teach the mixing as occurring during the transportation through a fluid channel. However, it is obvious to transform a known batch process into a continuous process. See MPEP § 2144.04 (V). Therefore it would have been obvious to a person having ordinary skill in the art at the time of invention to have made the process of Saito et al. continuous/mix the components in a transportation channel, and the motivation to do so would have been to make the process more efficient and cost effective.

S. Kawahara et al. teaches that urea in the presence of a surfactant (pg. 181) will reduce the nitrogen content of the rubber/sufficiently denature the proteins substantially within the first ten minutes of the incubation (pg. 182).

Considering Claim 2: Saito et al. teaches the amount of urea added as being 0.1 weight percent (page 1).

Considering Claim 3: Saito et al. teaches the amount of surfactant as being 1 weight percent (page 1).

Response to Arguments

Applicant's arguments filed December 30, 2008 have been fully considered but they are not persuasive, because:

A) Applicants argument that claimed continuous process is unexpectedly superior to the batch process in terms of processing time is not persuasive. As shown by evidentiary reference S. Kawahara et al. it was known in the art at the time of the invention that denaturing of proteins in rubber with urea could be achieved in a time period of 10 minutes (pg. 182). Therefore, the ability to process the rubber in time periods of approximately 10 minutes as shown in the examples of the original specification could not be an unexpected result. Additionally, the criticality of a shorter processing time is not recognized by the original specification, which states that longer processing times are in fact preferred (10:5-9). It is not clear how the ability to run the reaction in a time period that the original specification states is less preferred would provide patentability to the process.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 1796

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/

Supervisory Patent Examiner, Art Unit 1796

LJH

February 13, 2009